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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/933,762	08/22/2001	Shinichi Tochihara	35 C15691	6174

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EXAMINER

SHAH, MANISH S

ART UNIT PAPER NUMBER

2853

DATE MAILED 10/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/933,762

Examiner

Manish S. Shah

Applicant(s)

TOCHIHARA ET AL.

Art Unit

2853

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(e). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED. (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08/04/2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
 If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1, 3-5 & 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin (# US 5764263) in view of Tanuma et al. (# US 6166122).

Lin discloses an ink jet recording method and system, which employs an ink jet recording apparatus (figure: 1, 2) having a recording medium, an ink containers (element: 11, 21, figure: 1, 2), in which a plurality of pigment inks are contained, and ink jet heads for ejecting the respective pigment ink (element: 12, 22, figure: 1, 2), which ejects the ink composition on the image-receiving layer (column: 6, line: 35-45). They also disclose that the ink employ in recording using pigmented coloring material (column: 15, line: 5-67), a resin (water soluble polymer) (column: 18, line: 58-65) in an aqueous medium (water: water soluble organic solvent; 97:3 to 50:50) (column: 13, line: 29-45) and including 50 to 100 % wt. of mixture of water and water soluble organic solvent (column: 13, line: 40-45; see Examples). They also disclose that the particle diameter of the pigment substantially fall within the range from 0.01 to 1.2 micron (10-1200 nm), and the proportion of pigment particles having a particle diameter of below 0.3 micron (300 nm) is at least 70% based on the total number of particles of the

pigment and others (100-70=30%) will be less than 1 micron (1000 nm) (column: 17, line: 15-35), and the resin (water soluble polymer) contained in the pigment ink is within a range of from 0.01-5% by weight (column: 19, line: 1-10). They also disclose that the ink of plural colors of at least cyan, magenta and yellow are used as the pigmented ink (column: 15, line: 5-10). They also disclose that the recording is done on continuous web, plain paper (porous), bond paper (porous), coated paper (column: 9, line: 29-40).

Lin differs from the claim of the present invention in that the ink receiving layer of the recording medium is a porous layer comprises alumina hydrate and a resin binder on a base material and has a pore volume ranging from 0.1 to 1.0 ml/g and the ink receiving layer has a thickness of at least 15 μm .

Tanuma et al. teaches that the ink receiving layer of the recording medium is a porous layer (column: 2, line: 15-20) comprises alumina hydrate and a polymerizable binder (resin binder) on a base material (column: 2, line: 5-20; column: 4, line: 15-25) and has a pore volume ranging from 0.3 to 2.0 ml/g (column: 3, line: 43-47) and has a the ink receiving layer has a thickness of at least 20 μm (column: 3, line: 50-60; column: 4, line: 37-41).

It would have been obvious to one of ordinary skill in the art at the time of invention was made to incorporate the porous ink receiving layer taught by the Tanuma et al. into the ink jet recording method and system of Lin because it has a high ink absorbency rate and transparency, and it gives the high color density, good light-fastness and good water-fastness printed image (column: 3, line: 50-65).

2. Claims 2 & 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin (# US 5764263) in view of Tanuma et al. (# US 6166122) as applied to claims 1, 3-5 & 7-9 above, and further in view of Kondo et al. (# US 6000794).

Lin and Tanuma et al. teaches all the limitation of ink jet recording method and system except that the ink-receiving layer has a BET specific surface area within a range of from 20 to 450 m^2/g .

Kondo et al. teaches that to get the high color density and the high ink absorptivity ink-receiving layer has a BET specific surface area within a range of from 20 to 300 m^2/ml (m^2/g) (column: 6, line: 55-65).

It would have been obvious to one of ordinary skill in the art at the time of invention was made to incorporate the ink receiving layer with specific surface area taught by the Kondo et al. into the ink jet recording method and system of Lin as modified because it gives a high ink absorbency rate and it gives the high color density printed image (column: 6, line: 60-65).

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

(1) Lin et al. (# US 6143807) discloses an ink jet recording method and system, which employs an ink jet recording apparatus having a recording medium, an ink containers, in which a plurality of pigment inks are contained, and ink jet heads for

ejecting the respective pigment ink (see Examples), which ejects the ink composition on the image-receiving layer (column: 15, line: 1-15). They also disclose that the ink employ in recording using pigmented coloring material (column: 9, line: 1-67), a resin (water soluble polymer) (column: 12, line: 54-65) in an aqueous medium (water: water soluble organic solvent; 97:3 to 50:50) (column: 6, line: 20-45) and including less than 70 % wt. of mixture of water and water soluble organic solvent (see Examples). They also disclose that the particle diameter of the pigment substantially fall within the range from 0.01 to 1.2 micron (10-1200 nm), and the proportion of pigment particles having a particle diameter of below 0.3 micron (300 nm) is at least 70% based on the total number of particles of the pigment and others (100-70=30%) will be less than 1 micron (1000 nm) (column: 5, line: 15-35), and the resin (water soluble polymer) contained in the pigment ink is within a range of from 0.001-8 % by weight (column: 12, line: 54-67). They also disclose that the ink of plural colors of at least cyan, magenta and yellow are used as the pigmented ink (column: 9, line: 1-10). They also disclose that the recording is done on textile (porous), plain paper (porous), bond paper (porous), coated paper (column: 15, line: 1-15).

(2) Sekiguchi (# US 6485812) discloses the ink jet recording sheet has a support and ink receiving layer with inorganic particle and binder resin (see Abstract), wherein inorganic particles are alumina hydrate and binder is a polymer latex and alkyd resin (column: 9, line: 45-60; column: 12, line: 1-20). They also disclose that the alumina hydrate has a pore volume within the range from 0.1 to 1.2 ml/g and surface area is within the range from 70 to 300 m²/g (column: 9, line: 45-60).

(3) Yoshino et al. (# US 5962124) discloses the ink jet recording sheet has a support and ink-receiving layer with inorganic particle and binder resin (see Abstract), wherein inorganic particles are alumina hydrate and binder is a polymer latex and alkyd resin (column: 9, line: 35-40; column: 12, line: 1-20). They also disclose that the alumina hydrate has a pore volume within the range from 0.1 to 0.6 ml/g (column: 10, line: 28-32) and surface area is within the range from 70 to 300 m²/g (column: 7, line: 5-10).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Manish S. Shah whose telephone number is (703) 305-1562. The examiner can normally be reached on 7:00am-3:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen D. Meier can be reached on (703) 308-4896. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 305-4900.

Manish S. Shah
Examiner
Art Unit 2853


MSS

9/9/03